

AMENDMENTS TO THE CLAIMS

1. (currently amended) A device comprising:
a laminar body comprising:
a substrate having a first surface and a second surface;
at least one heating element disposed on the first surface; the heating element comprising:
a first contact and second contact through which electric current enters and leaves the heating element;
a first conductive layer trace having a first end connected to the first contact patterned into at least two electrodes in a spaced relation to each other;
a second conductive trace having a second end connected to the second contact;
the first conductive trace being patterned in a spaced relation separate from the second conductive trace;
a resistive layer comprising a resistive material having a resistance temperature coefficient such that resistance changes with temperature; the resistive layer being disposed to permit current to flow from one conductive trace through the resistive material to the other conductive trace according to the temperature-based resistance of the resistive material between the electrodes; and at least one fluid-receiving location corresponding to the location of the at least one heating element wherein the heating element is in thermal communication with the fluid-receiving location.
2. (previously amended) The device of claim 1 wherein the resistance temperature coefficient is positive such that the resistance increases with increasing temperature.
3. (currently amended) The device of claim 1 wherein the conductive traces and resistive layer[[s]] are disposed by printing electrically-conductive and resistive inks.

4. (original) The device of claim 1 wherein the at least one heating element is arranged in a concentric pattern.

5. (currently amended) The device of claim 1 wherein the laminar body further includes at least one heating element disposed on the second surface of the substrate; the heating element comprising:

a first contact and second contact through which electric current enters and leaves the heating element;

a first conductive layer trace having a first end connected to the first contact patterned into at least two electrodes in a spaced relation to each other;

a second conductive trace having a second end connected to the second contact;

the first conductive trace being patterned in a spaced relation separate from the second conductive trace;

a resistive layer comprising a resistive material having a resistance temperature coefficient such that resistance changes with temperature; the resistive layer being disposed to permit current to flow from one conductive trace through the resistive material to the other conductive trace according to the temperature-based resistance of the resistive material between the electrodes.

6. (original) The device of claim 1 further comprising

a bridge circuit; the bridge including the heating element and a plurality of other resistors; and

a control circuit for controlling a current in the bridge in such a manner that a predetermined temperature is maintained at the fluid-receiving location.

7. (original) The device of claim 1 further including at least one geometry integrally formed in the laminar body at a location of the fluid-receiving location.

8. (original) The device of claim 7 wherein at least one heating element is positioned along at least a portion of a surface of the geometry.

9. (original) The device of claim 7 wherein at least one heating element is positioned at or above one or more predetermined volume graduation of the geometry.
10. (original) The device of claim 7 wherein the geometry includes a reservoir or channel and the heating element is located adjacent to the reservoir or channel.
11. (original) The device of claim 1 wherein further including a second body in thermal communication with the laminar body; the second body having at least one geometry configured to receive fluid and formed in the second body at a location corresponding to the fluid-receiving location of the laminar body.
12. (original) The device of claim 11 wherein at least one heating element is positioned along at least a portion of a surface of the geometry.
13. (original) The device of claim 11 wherein at least one heating element is positioned at or above one or more predetermined volume graduation of the geometry.
14. (original) The device of claim 11 wherein the second body is a contact layer.
15. (original) The device of claim 11 wherein the second body is a microfluidic device, a micro-centrifuge tube, or a micro-well plate.
16. (original) The device of claim 11 wherein the laminar body and the second body are formed by a process to integrally marry the laminar body with the second body.

17-23 (canceled)

24. (new) The device of claim 1 wherein the first contact and the first conductive trace are the same trace and the second contact and the second conductive trace are the same trace.

25. (new) The device of claim 1 wherein the resistive layer is disposed over the first and second conductive traces electrically connecting the first and second conductive traces.